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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,716	02/19/2004	Steven L. VanLaningham	03CR418/KE	5575

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Kyle Eppele
Patent Department 124-323
400 Collins Rd. NE
Cedar Rapids, IA 52498

EXAMINER	
TRINH, TAN H	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/782,716	VANLANINGHAM ET AL.	
	Examiner	Art Unit	
	TAN TRINH	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08-30-2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 8-12, 16-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiu (U.S. pub. NO. 2004/0082311) in view of Santos (U.S. Patent No. 6,684,247) further in view of Todd (U.S. Patent No. 6,359,901).

Regarding claim 1, Shiu teaches a method of adapting a communication link in a network of radio communication nodes (see fig. 1, page 1, section [0009]), comprising: sending by a first node a first radio communication (see figs. 1-2, first node (BS) 102, first communication signal 132, page 3, section [0027], lines 1-8); receiving by a second node the first radio communication (see figs. 1-2, second node (WCD) 104, first communication signal 132, page 3, section [0027] lines 1-8), estimating (an estimate of the predictability of the wireless environments) by the

second node the dynamics of the communications channel (see page 3, sections [0033-0034]); categorizing the dynamics of the communications channel into one of at least two groups such as less stable or very stable conditions (see page 3, section [0035]), and selecting, based on the chosen group, the use of either closed loop link adoptions or open loop adoptions of communication link parameters (see page 5, section [0048]).

Still regarding claim 1, Shiu teaches a link metric (see page 5, section [0050]). But Shiu fails to teach the newly added limitation of: sending by a first node a first radio communication "*to a monitoring node*" and "estimating by the *monitoring node* the dynamics of a communications channel *based on a link metric of at least the first radio communication*". Such teaching is taught by Santos. (See fig. 1, monitoring station 110, and first node 101, and fig. 3 and 7, estimating by monitoring station 110 base on link metric of at least the first radio communication, and see col. 2, lines 5-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Shiu with Santos, in order to provide for identifying congestion and anomalies at individual nodes, links, and segments in network (see suggested by Santos on the abstract lines 1-3).

Still second regarding claim 1, Shiu teaches a link metric (see page 5, section [0050]). And Santos teaches sending by a first node a first radio communication "*to a monitoring node*" and "estimating by the *monitoring node* the dynamics of a communications channel *based on a link metric of at least the first radio communication*" (See fig. 1, monitoring station 110, and first node 101, and fig. 3 and 7, estimating by monitoring station 110 base on link metric of at least

the first radio communication, and see col. 2, lines 5-67). But Shiu or Santos fails to teach the newly added limitation of: *the monitoring node is a last open loop output peer node.*

However, Todd teaches the monitoring node with (a last) the open loop output peer node (see fig. 4 and 8, BS node or headquarter 172, with the radio node 160, 162, 164, 166, 168 and 170, col. 4, lines 4-col. 5, lines 37, and col. 11, lines 32-55). In this case the last node of monitoring of the open loop slave node 32, or man-pack radio node 170, can be the last monitoring node of the output peer. Since references does not mention the last node as cited in the claims. However, these skilled in the art would have appreciated that the above differences would not render the claims patentable over the applied references. The reasons are that the above differences would merely depend on how one would like to select particular node is the last node to be suitable to the system requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the applied references as claimed, so that the system of the applied references would be suitable to different system requirements.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu and Santos with Todd, in order provide filtering and QOS calculation and application of the layer can be adjust its message generation rate to prevent unrestrained growth in the average delay experienced by the network (see suggested by Todd on col. 12, lines 14-24).

Regarding claim 2, Shiu teaches the method of claim 1. Shiu further teaches wherein one of the two groups is a static group (see page 1, sections [0009-0010]). Because the conditions of the signal transmission path of the wireless channel are stable.

Regarding claim 3, Shiu teaches the method of claim 1. Shiu further teaches wherein one of the two groups is a dynamic group (see page 1, sections [0009-0010]). Because the conditions of the signal transmission path of the wireless channel are rapidly changing.

Regarding claim 4, Shiu teaches the method of claim 1. Shiu further teaches wherein the link metric is a received signal strength indicator (RSSI) (see page 5, section [0050]). In this case, the base station monitor the signal strength from surrounding, when signal strength from base station and WCD is in communication with decreases below a threshold level, the BS and WCD link signal strength below the threshold level is the link metric.

Regarding claim 8, Shiu teaches the method of claim 1. Shiu further teaches wherein the communication link parameters comprise a transmit power (see page 4, section [0046]).

Regarding claim 21, Shiu teaches the method of claim 1. Shiu further teaches sending the first node the first radio communication to at least a second node (see figs. 1-2, first node (BS) 102, first communication signal 132, page 3, section [0027], lines 1-8); to a second node the first radio communication (see figs. 1-2, second node (WCD) 104, first communication signal 132, page 3, section [0027] lines 1-8).

Regarding claim 9, Shiu teaches a method of changing communication link adaption techniques in a network of radio communication nodes (see fig. 1, page 1, section [0008-0009]), comprising: detecting interference based on an open loop mode (see fig. 1, sections [0009-0010] and page 4, section [0041]); estimating (an estimate of the predictability of the wireless environments) using an open loop estimator (see page 3, section [0033]), and determining, whether transmission parameters should be adjusted based on open loop metrics or closed loop metrics, based on the channel dynamics (see page 3, sections [0033-0034]).

Still regarding claim 9, Shiu teaches an open loop metrics or closed loop metrics, based on the channel dynamics (see page 3, sections [0033-0034]). But Shiu fails to teach the newly added limitation of " detecting interference *by utilizing a monitoring node that receives communication signals*". Such teaching is taught by Santos. (See fig. 1, monitoring station 110, and first node 101, and fig. 3 and 7, estimating by monitoring station 110 base on link metric of communication signal, and see col. 1, lines 65 - col. 2, lines 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Shiu with Santos, in order to provide for identifying congestion and anomalies at individual nodes, links, and segments in network (see suggested by Santos on the abstract lines 1-3).

Still second regarding claim 9, Shiu teaches an open loop metrics or closed loop metrics, based on the channel dynamics (see page 3, sections [0033-0034]), and Santos teaches detecting interference by utilizing a monitoring node that receives communication signals (See

fig. 1, monitoring station 110, and first node 101, and fig. 3 and 7, estimating by monitoring station 110 base on link metric of communication signal, and see col. 1, lines 65 - col. 2, lines 67). But Shiu or Santos fails to teach the newly added limitation of: *the monitoring node is a last open loop output peer node.*

However, Todd teaches the monitoring node with (a last) the open loop output peer node (see fig. 4 and 8, BS node or headquarter 172, with the radio node 160, 162, 164, 166, 168 and 170, col. 4, lines 4-col. 5, lines 37, and col. 11, lines 32-55). In this case the last node of monitoring of the open loop slave node 32, or man-pack radio node 170, can be the last monitoring node of the output peer. Since references does not mention the last node as cited in the claims. However, these skilled in the art would have appreciated that the above differences would not render the claims patentable over the applied references. The reasons are that the above differences would merely depend on how one would like to select particular node is the last node to be suitable to the system requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the applied references as claimed, so that the system of the applied references would be suitable to different system requirements.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu and Santos with Todd, in order provide filtering and QOS calculation and application of the layer can be adjust its message generation rate to prevent unrestrained growth in the average delay experienced by the network (see suggested by Todd on col. 12, lines 14-24).

Regarding claim 10, Shiu teaches the method of claim 9. Shiu further teaches the adjusting the transmission parameters based on open loop metrics (see pages 4-5, sections [0041 and 0048]).

Regarding claim 11, Shiu teaches the method of claim 10, Shiu further teaches the adjusting the transmission parameters based on closed loop metrics (see pages 4-5, sections [0046 and 0048]).

Regarding claim 12, Shiu teaches the method of claim 9. Shiu further teaches wherein the open loop estimator uses the received signal strength indicator (RSSI) (see page 5, sections [0048 and 0050]).

Regarding claim 16, Shiu teaches the method of claim 9. Shiu further teaches wherein the transmission parameters comprise a transmit power (see page 4, section [0046]).

Regarding claim 17, Shiu teaches a radio node communication system (see fig. 1), comprising: a first radio node (see fig. 1-2, first node (BS) 102); a second radio node (see fig. 1-2, second node (WCD) 104); a processor generating an open loop metric to estimate channel dynamics (see page 3, sections [0033-0034). (In this case is open loop and estimate channel dynamics, since the WCD moving at high velocity and unstable), and determining, based on the channel dynamics, the transmission parameter adjustments based on one of the open loop metrics or closed loop metrics page 5, sections [0046-0048]).

Still regarding claim 17, Shiu teaches a first radio node (see fig. 1-2, first node (BS) 102); a second radio node (see fig. 1-2, second node (WCD) 104) and sending by a first node a first radio communication (see figs. 1-2, first node (BS) 102, first communication signal 132, page 3, section [0027], lines 1-8); to a second node the first radio communication (see figs. 1-2, second node (WCD) 104, first communication signal 132, page 3, section [0027] lines 1-8), But Shiu fails to teach the newly added limitation of: "*the first radio node configured to send a first radio communication to a monitoring node*" and a processor "*coupled to the monitor node*". Such Such teaching is taught by Santos. (See fig. 1, first node 101 send the a first radio communication to monitoring station 110, and fig. 3 and 7, estimating by monitoring station 110 base on link metric of communication signal, and see col. 1, lines 65 - col. 2, lines 67). And also see fig. 2, processor 200 coupled to the monitor node 110, and col. 4, line 27-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Shiu with Santos, in order to provide for identifying congestion and anomalies at individual nodes, links, and segments in network (see suggested by Santos on the abstract lines 1-3).

Still second regarding claim 17, Shiu teaches a first radio node (see fig. 1-2, first node (BS) 102); a second radio node (see fig. 1-2, second node (WCD) 104) and sending by a first node a first radio communication (see figs. 1-2, first node (BS) 102, first communication signal 132, page 3, section [0027], lines 1-8); and Santos teaches the first radio node configured to send a first radio communication to a monitoring node and a processor "coupled to the monitor node (See fig. 1, first node 101 send the a first radio communication to monitoring station 110, and

fig. 3 and 7, estimating by monitoring station 110 base on link metric of communication signal, and see col. 1, lines 65 - col. 2, lines 67). And also see fig. 2, processor 200 coupled to the monitor node 110, and col. 4, line 27-32). But Shiu or Santos fails to teach the newly added limitation of: *the monitoring node is a last open loop output peer node.*

However, Todd teaches the monitoring node with (a last) the open loop output peer node (see fig. 4 and 8, BS node or headquarter 172, with the radio node 160, 162, 164, 166, 168 and 170, col. 4, lines 4-col. 5, lines 37, and col. 11, lines 32-55). In this case the last node of monitoring of the open loop slave node 32, or man-pack radio node 170, can be the last monitoring node of the output peer. Since references does not mention the last node as cited in the claims. However, these skilled in the art would have appreciated that the above differences would not render the claims patentable over the applied references. The reasons are that the above differences would merely depend on how one would like to select particular node is the last node to be suitable to the system requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the applied references as claimed, so that the system of the applied references would be suitable to different system requirements.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu and Santos with Todd, in order provide filtering and QOS calculation and application of the layer can be adjust its message generation rate to prevent unrestrained growth in the average delay experienced by the network (see suggested by Todd on col. 12, lines 14-24).

Regarding claim 18, Shiu teaches the system of claim 17. Shiu further teaches wherein the transmission parameters comprise a transmit power (see page 4, section [0046]).

Regarding claim 19, Shiu teaches the system of claim 17, Shiu further teaches wherein the first radio node comprises a radio transceiver and the second radio node comprises a radio transceiver (see fig. 2, first radio (BS) 102, radio transceiver (transmitter 212 and receiver 214) and second radio node (WCD) 104, radio transceiver (transmitter 224 and receiver 222), page 3, section [0030]).

4. Claims 5-6 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiu (U.S. Pub. NO. 2004/0082311) in view of Santos (U.S. Patent No. 6,684,247) further in view of Todd (U.S. Patent No. 6,359,901) and further in view of Sadri (U.S. Pub. 2005/0032514).

Regarding claims 5-6, Shiu teaches wherein the estimate is based on the signal interference (see page 1, section [0009]) and a link metric (see page 5, section [0050]). But Shiu or Santos does not mention the signal to noise ratio (SNR) or the symbol error rate (SER).

However, Sadri teaches an estimating process for detecting the signal quality based on the signal to noise ratio (SNR) or the symbol error rate (SER) (see page 3, section [0026]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu, Santos and Todd, with Sadri, in order to obtain better flexibility so that various of signal quality measuring techniques can be used for the wireless system.

Regarding claims 13-14, Shiu teaches wherein the estimate is based on the signal interference (see page 1, section [0009]). But Shiu or Santos does not mention a signal to noise ratio (SNR) or the symbol error rate (SER).

However, Sadri teaches an estimating process for detecting the signal quality based on a signal to noise ratio (SNR) or a symbol error rate (SER) (see page 3, section [0026]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu, Santos and Todd with Sadri, in order to obtain better flexibility so that various of signal quality measuring techniques can be used for the wireless system.

5. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiu (U.S. Pub. NO. 2004/0082311) in view of Santos (U.S. Patent No. 6,684,247) further in view of Todd (U.S. Patent No. 6,359,901) and further in view of Petrus (U.S. Patent No. 2004/0005905).

Regarding claim 7, Shiu teaches first radio communication. But Shiu, Santos or Todd does not mention wherein the first radio communication includes a message header with a transmission power indicator.

However, Petrus a message header with a transmission power indicator (see fig. 2, header 205, page 2, section [0023]). Since the transmission power indicator is the transmission power control for increasing or decreasing in transmission power by a predetermined amount in the power control message).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu, Santos and Todd with

Petrus, in order to provide predetermined amount of transmission power in the power control message.

Regarding claim 15, Shiu teaches receiving first radio communication. But Shiu, Todd or Santos does not mention wherein receiving a radio communication having a message header with a transmission power indicator.

However, Petrus a message header with a transmission power indicator (see fig. 2, header 205, page 2, section [0023]). Since in the recieving the transmission power indicator is the power control message for increase or decrease in transmission power control by a predetermined amount in the power control message indication when received).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu, Santos and Todd with Petrus, in order to provide predetermined amount of transmission power in the power control message.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiu (U.S. Pub. NO. 2004/0082311) further in view of Santos (U.S. Patent No. 6,684,247) further in view of Todd (U.S. Patent No. 6,359,901) and further in view of Kwak (U.S. Pub. No. 2004/0014482).

Regarding claim 20, Shiu or Santos teaches the estimate transmission power control from first node. But Shiu does not mention the transmission power indicator from the first node.

However, Kwak teaches wherein the transmission power indicator from the first node (see fig. 1 and 3, first node 101 or node B 301, page 13, section [0103]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of the teaching of Shiu, Santos and Todd with Kwak, in order to provide mobile phone with the transmission power reference numeral indicates paths of channel from base station (see Kwak page 1, section [0007).

Response to Arguments

7. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300, (for Technology Center 2600 only)

*Hand-delivered responses should be brought to the Customer Service Window (now located at the **Randolph Building, 401 Dulany Street, Alexandria, VA 22314).***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan Trinh whose telephone number is (571) 272-7888. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Anderson, Matthew D., can be reached at (571) 272-4177.

The fax phone number for the organization where this application or proceeding is assigned is **(571) 273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tan H. Trinh
Division 2618
October 28, 2007

PATENT EXAMINER
TRINH,TAN